

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-62 (canceled)

Claim 63. (new) A system for detecting the growth of microorganisms in a sample in a container, comprising:

- a laser adapted to emit, through said container, radiation at a substantially single wavelength at which O₂ gas absorbs radiation;
- a detector adapted to detect at least a portion of said radiation that passes through said container; and
- a signal analyzer adapted to analyze said detected radiation, wherein the signal analyzer determines at least one parameter selected from the group consisting of the pressure in the container, the existence of O₂ gas in the container, and the concentration of O₂ gas in the container.

Claim 64. (new) The system of claim 63, wherein the laser is a monomodal, distributed feedback laser.

Claim 65. (new) The system of claim 63, wherein the single wavelength is approximately 761.5 nanometers.

Claim 66. (new) The system of claim 63, wherein the signal analyzer determines the pressure in the container.

Claim 67. (new) The system of claim 63, wherein the signal analyzer determines the existence of said O₂ gas in the container.

Claim 68. (new) The system of claim 63, wherein the signal analyzer determines the concentration of said O₂ gas in the container.

Claim 69. (new) The system of claim 63, wherein said signal analyzer includes a spectrography device, adapted to spectrographically analyze said detected portion of said radiation.

Claim 70. (new) The system of claim 63, wherein the system is adapted to hold a plurality of said containers, and wherein the system further comprises a housing, adapted to house said laser and said detector, said housing being movable such that said laser and said detector are capable of being located proximate to each of said containers, sequentially in time.

Claim 71. (new) The system of claim 70, wherein said containers are arranged in a plurality of rows and columns, and the housing is adapted to move along said rows and said columns.

Claim 72. (new) The system of claim 70, wherein said housing is adapted to extend said laser and said detector toward each said container and to retract said laser and said detector away from each said container.

Claim 73. (new) The system of claim 63, wherein the system is adapted to hold a plurality of said containers, wherein the system further comprises a housing having a plurality of openings therein, each said opening adapted to receive one of said containers, and wherein the housing is movable such that each of said containers is capable of being moved proximate to said laser and said detector.

Claim 74. (new) The system of claim 73, wherein said housing is substantially circular, wherein said openings are disposed circumferentially about said housing, and wherein said housing rotates to move said containers proximate to said laser and said detector.

Claim 75. (new) The system of claim 63, wherein said laser is a diode laser, and wherein the laser is capable of being tuned to emit radiation at a plurality of distinct, substantially single wavelengths.

Claim 76. (new) The system of claim 63, wherein the system comprises a plurality of said lasers and a plurality of said detectors.

Claim 77. (new) The system of claim 63, wherein said container comprises a sample vial having a neck, and wherein said laser is adapted to emit said radiation through said neck.

Claim 78. (new) The system of claim 63, wherein said signal analyzer comprises a computer.

Claim 79. (new) A system for detecting the growth of microorganisms in a sample in a container, comprising:

- a laser adapted to emit, through said container, radiation at a substantially single wavelength of approximately 2.004 micrometers at which CO₂ gas absorbs radiation;
- a detector adapted to detect at least a portion of said radiation that passes through said container; and
- a signal analyzer adapted to analyze said detected radiation, wherein the signal analyzer determines at least one parameter selected from the group consisting of the pressure in the container, the existence of CO₂ gas in the container, and the concentration of CO₂ gas in the container.

Claim 80. (new) The system of claim 79, wherein the laser is a monomodal, distributed feedback laser.

Claim 81. (new) The system of claim 79, wherein the signal analyzer determines the pressure in the container.

Claim 82. (new) The system of claim 79, wherein the signal analyzer determines the existence of said CO₂ gas in the container.

Claim 83. (new) The system of claim 79, wherein the signal analyzer determines the concentration of said CO₂ gas in the container.

Claim 84. (new) The system of claim 79, wherein said signal analyzer includes a spectrography device, adapted to spectrographically analyze said detected portion of said radiation.

Claim 85. (new) The system of claim 79, wherein the system is adapted to hold a plurality of said containers, and wherein the system further comprises a housing, adapted to house said laser and said detector, said housing being movable such that said laser and said detector are capable of being located proximate to each of said containers, sequentially in time.

Claim 86. (new) The system of claim 85, wherein said containers are arranged in a plurality of rows and columns, and the housing is adapted to move along said rows and said columns.

Claim 87. (new) The system of claim 85, wherein said housing is adapted to extend said laser and said detector toward each said container and to retract said laser and said detector away from each said container.

Claim 88. (new) The system of claim 79, wherein the system is adapted to hold a plurality of said containers, wherein the system further comprises a housing having a plurality of openings therein, each said opening adapted to receive one of said containers, and wherein the housing is movable such that each of said containers is capable of being moved proximate to said laser and said detector.

Claim 89. (new) The system of claim 88, wherein said housing is substantially circular, wherein said openings are disposed circumferentially about said housing, and wherein said housing rotates to move said containers proximate to said laser and said detector.

Claim 90. (new) The system of claim 79, wherein said laser is a diode laser, and wherein the laser is capable of being tuned to emit radiation at a plurality of distinct, substantially single wavelengths.

Claim 91. (new) The system of claim 79, wherein the system comprises a plurality of said lasers and a plurality of said detectors.

Claim 92. (new) The system of claim 79, wherein said container comprises a sample vial having a neck, and wherein said laser is adapted to emit said radiation through said neck.

Claim 93. (new) The system of claim 79, wherein said signal analyzer comprises a computer.

Claim 94. (new) A system for detecting the growth of microorganisms in a sample in a container, comprising:

- a laser adapted to emit, through said container, radiation at a substantially single wavelength at which a gas selected from the group consisting of NH_3 , H_2S , CH_4 and SO_2 absorbs radiation;
- a detector adapted to detect at least a portion of said radiation that passes through said container; and
- a signal analyzer adapted to analyze said detected radiation, wherein the signal analyzer determines at least one parameter selected from the group consisting of the pressure in the container, the existence of said gas in the container, and the concentration of said gas in the container.

Claim 95. (new) The system of claim 94, wherein the laser is a monomodal, distributed feedback laser.

Claim 96. (new) The system of claim 94, wherein said gas is NH_3 and said wavelength is approximately 1.997 micrometers.

Claim 97. (new) The system of claim 94, wherein said gas is H_2S and said wavelength is approximately 1.570 micrometers.

Claim 98. (new) The system of claim 94, wherein said gas is CH_4 and said wavelength is approximately 1.650 micrometers.

Claim 99 (new) The system of claim 94, wherein said gas is SO_2 and said wavelength is approximately 7.28 micrometers.

Claim 100. (new) The system of claim 94, wherein the signal analyzer determines the pressure in the container.

Claim 101. (new) The system of claim 94, wherein the signal analyzer determines the existence of said gas in the container.

Claim 102. (new) The system of claim 94, wherein the signal analyzer determines the concentration of said gas in the container.

Claim 103. (new) The system of claim 94, wherein said signal analyzer includes a spectrography device, adapted to spectrographically analyze said detected portion of said radiation.

Claim 104. (new) The system of claim 94, wherein the system is adapted to hold a plurality of said containers, and wherein the system further comprises a housing, adapted to house said laser and said detector, said housing being movable such that said laser and said detector are capable of being located proximate to each of said containers, sequentially in time.

Claim 105. (new) The system of claim 104, wherein said containers are arranged in a plurality of rows and columns, and the housing is adapted to move along said rows and said columns.

Claim 106. (new) The system of claim 104, wherein said housing is adapted to extend said laser and said detector toward each said container and to retract said laser and said detector away from each said container.

Claim 107. (new) The system of claim 94, wherein the system is adapted to hold a plurality of said containers, wherein the system further comprises a housing having a plurality of openings therein, each said opening adapted to receive one of said containers, and wherein the housing is movable such that each of said containers is capable of being moved proximate to said laser and said detector.

Claim 108. (new) The system of claim 107, wherein said housing is substantially circular, wherein said openings are disposed circumferentially about said housing, and wherein said housing rotates to move said containers proximate to said laser and said detector.

Claim 109. (new) The system of claim 94, wherein said laser is a diode laser, and wherein the laser is capable of being tuned to emit radiation at a plurality of distinct, substantially single wavelengths.

Claim 110. (new) The system of claim 94, wherein the system comprises a plurality of said lasers and a plurality of said detectors.

Claim 111. (new) The system of claim 94, wherein said container comprises a sample vial having a neck, and wherein said laser is adapted to emit said radiation through said neck.

Claim 112. (new) The system of claim 94, wherein said signal analyzer comprises a computer.